

**REMARKS**

Reconsideration of this application, as amended, is respectfully requested.

Claims 1-12 are pending in the application, with Claims 1 and 12 being independent claims. As indicated above, Claims 1 and 12 are amended.

In the Office Action, Claims 1 and 4-12 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Applicant's Admitted Prior Art (AAPA)* in view of *Uesugi et al.* (US 2002/0114379), Claim 2 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *AAPA* in view of *Uesugi*, and further in view of *Matsumoto et al.* (US 2002/0136207), and Claim 3 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *AAPA* in view of *Uesugi*, and further in view of *Lassen et al.* (US 2002/0087685).

As indicated above, independent Claim 1 is rejected under 35 U.S.C. §103(a) as being unpatentable over *AAPA* in view of *Uesugi*. Specifically, in rejecting Claim 1, the Examiner asserts that *AAPA* teaches all the recitations of the claims, except for “performing a QAM (Quadrature Amplitude Modulation) demapping process on the received signals by a modulation method using a maximum modulation ratio, and outputting first data which have a number of bits corresponding to the modulation method using the maximum modulation ratio until modulation methods for each of the sub-channels are analyzed, and storing the first data the slot buffer,” which are allegedly taught in *Uesugi*. Applicants respectfully disagree.

Claim 1 recites a demodulation apparatus for receiving signals by an adaptive modulation and coding method, and demodulating the signals, in an OFDMA based packet communication system, comprising:

a QAM demapper for performing a QAM (Quadrature Amplitude Modulation) demapping

process on the received signals by a modulation method using a maximum modulation ratio, and outputting first data which have a number of bits corresponding to the modulation method using the maximum modulation ratio until modulation methods for each of the sub-channels are analyzed, and performing the QAM demapping process on the received signals by the modulation methods for each of the sub-channels and outputting second data which have a number of bits corresponding to the modulation methods for each of the sub-channels, when the modulation methods for each of the sub-channels are analyzed;

a slot buffer for storing the first data and the second data outputted from the QAM demapper for each slot; and

a channel decoder for decoding the data stored in the slot buffer, analyzing modulation methods for each of the sub-channels transferring the analyzed modulation methods to the QAM demapper, reading only valid data corresponding to the number of bits for the analyzed modulation methods from among all bits of the first data, demodulating the valid data, once the modulation methods for each of the sub-channels are analyzed by the channel decoder, reading all bits of the second data, demodulating the ~~valid~~ read bits of the second data, and outputting the demodulated data.

More specifically, the Examiner alleges that *Uesugi* discloses “performing a QAM (Quadrature Amplitude Modulation) demapping process on the received signals by a modulation method using a maximum modulation ratio, and outputting first data which have a number of bits corresponding to the modulation method using the maximum modulation ratio until modulation methods for each of the sub-channels are analyzed”, as recited in Claim 1, citing, *inter alia*, paragraphs [0094], [0095], [0060]-[0074] and [0076]-[0080] of *Uesugi*.

However, upon review of the cited sections of *Uesugi*, it is respectfully submitted that there is no portion of this citation, or any other section of *Uesugi*, which teaches these recitations of Claim 1. *Uesugi* merely discloses that an adaptive modulation communication system where a modulation scheme is varied adaptively for each transmit unit, a transmitting-side apparatus sets different error

detecting units corresponding to bit position, and transmits data subjected to error detecting processing on a different error detecting unit basis corresponding to bit position, and a receiving-side apparatus performs demodulation independently using different demodulation patterns for each error detecting unit to obtain received data, but does not disclose “outputting first data which have a number of bits corresponding to the modulation method using the maximum modulation ratio until modulation methods for each of the sub-channels are analyzed,” as recited in Claim 1.

Further, in order to further distinguish Claim 1 from the Examiner’s cited art, as indicated above, this claim has been amended to more clearly recite “a channel decoder for decoding the data stored in the slot buffer, analyzing modulation methods for each of the sub-channels transferring the analyzed modulation methods to the QAM demapper, reading only valid data corresponding to the number of bits for the analyzed modulation methods from among all bits of the first data, demodulating the valid data, once the modulation methods for each of the sub-channels are analyzed by the channel decoder, and the second data, reading all bits of the second data, demodulating the valid read bits of the second data, and outputting the demodulated data.”

Specifically, in order to further distinguish independent Claim 1 over the Examiner’s cited art, this claim is amended to clarify that a channel decoder reads only valid data corresponding to the number of bits for the analyzed modulation methods from among all bits of the first data and demodulates the valid data, once the modulation methods for each the sub-channels are analyzed by the channel decoder. Further, the channel decoder reads all bits of the second data and demodulates all the read bits of the second data.

Based at least upon the arguments and amendments above, it is respectfully submitted that amended Claim 1 is patentable over the combination of *AAPA* and *Uesugi*, as none of these references, either alone or in combination, teaches or renders obvious all the recitations of amended Claim 1.

Amended Claim 12 recites similar features as those discussed above regarding amended independent Claim 1. Therefore, for the same reasoning argued above for amended Claim 1, it is also respectfully requested that the rejection of independent Claim 12 be withdrawn.

Accordingly, it is respectfully submitted that amended independent Claims 1 and 12 are in condition for allowance.

Without conceding the patentability *per se* of dependent Claims 2-11 each depend either directly or indirectly from independent amended Claim 1, and are also believed to be patentable for at least the same reasons as set forth above for amended independent Claim 1.

Accordingly, all pending claims, i.e., Claims 1-12, are believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,



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